REMARKS

Claims 1-4, 9, 13, 17 and 19-26 are pending in the application. It is gratefully acknowledged that the Examiner has objected to Claims 3, 4, 21, 22, 25 and 26 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. The Examiner rejects Claims 1, 2, 19, 20, 23 and 24 under 35 U.S.C. §103(a) as unpatentable over Smith et al. (U.S. Patent 6,006,075) in view of Zehavi (U.S. Patent 6,185,199) and further in view of Rappaport (Rappaport, "Wireless Communications", Prentice Hall Publications, 1996). The Examiner rejects Claim 9 under 35 U.S.C. §103(a) as unpatentable over Smith et al. in view of Zehavi, further in view of Rappaport, and further in view of Madhow et al. (U.S. Patent 6,185,199). The Examiner rejects Claim 13 under 35 U.S.C. §103(a) as unpatentable over Smith et al. in view of Rappaport. The Examiner rejects Claim 17 under 35 U.S.C. §103(a) as unpatentable over Smith et al. in view of Rappaport and further in view of Madhow et al.

Regarding the rejection of independent Claims 1, 9, 13, 17, 19 and 23, the Examiner relies on Rappaport as disclosing that the switching cycle is an integer multiple of the code length as recited in the claims of the present application. In discussing the rejection of this element, the Examiner also cites Gibson, The Communications Handbook, pages 200-202 in support of his rejection.

Additionally, in the Response to Arguments section on page 2 of the Office Action, the Examiner raises two issues. First, the Examiner states that the claims contain a recitation of an intended use of a claimed invention that does not result in a structural difference between the claimed invention and the prior art, and therefore the claimed invention is not patentable. Second, the Examiner implies (on page 3) that the switching cycle recited in the claims of the present application is somehow inherent in the Rappaport system. Applicants' respectfully disagree on each issue as follows.

First, Applicants respectfully submit that the Examiner improperly maintains that the

independent claims recitation of "a time switching transmission controller...wherein the switching cycle is an integer multiple of the code length" is a recitation merely of an intended use, and relies on *In re Casey* and *In re Otto* to support this position. This is an incorrect application of the law. The M.P.E.P. at §2115 clearly states *"Note that this line of cases is limited to claims directed to machinery which works upon an article or material in its intended use."* The time switching transmission controller is *not* "machinery that works upon an article or material". When applying this theory of law, the changing of an article worked upon will not render the claimed invention patentably distinct. In the present application, the structure of the claimed apparatus is different from the prior art in that the time switching transmission controller is physically different from other controllers in the prior art. M.P.E.P. §2106 Patentable Subject Matter - Computer-Related Inventions sets forth the procedures that clearly render the claims of the present application patentable. The Examiner is improperly applying §2115 to the claims of the present application. Based on at least the foregoing, withdrawal of the rejections of Claims 1, 9, 13, 17, 19 and 23 is respectfully requested.

Second, the Examiner states that the Rappaport system can only operate if "the switching cycle is an integer multiple of the code length". Applicants respectfully submit that this position is not accurate. The system disclosed in Rappaport can operate on switching cycles that are not equal to an integer multiple of the code length. As stated in the specification of the present application, when a system performs conventional time switched transmission diversity, the switching cycle was not equal to an integer multiple of the code length, which results in erratic data, not a system failure. The Rappaport synchronization can occur if transmitted from different antennas on a switching cycle different from an integer multiple of the code length. The present application provides for the first time that if the switching cycle is equal to an integer multiple of the code length less, errors will occur in the transmission of data. Based on at least the foregoing, withdrawal of the rejections of Claims 1, 9, 13, 17, 19 and 23 is respectfully requested.

Regarding the rejections of claims 1, 2, 19, 20, 23 and 24, under §103(a), Smith et al. discloses that a plurality of tunable mixers are connected to antennas and *one* of the tunable mixers is selected by a controller. Smith et al. aims to obtain a frequency diversity gain by having

different frequencies in the mixers. On the contrary, the claims of the present application obtain time diversity gain and space diversity gain while using the same frequency in the RF transmitter. Accordingly, the present application utilizes the same RF transmitter. Zehavi discloses providing a full duplex CDMA scheme when independent forward and reverse links are not provided in a CDMA system, and providing full duplex in a TDD scheme when an FDD (Frequency Division Duplex) scheme is not provided. Switch 16 in Zehavi is not for TSTD (Time Switched Transmission Diversity) and is not even for diversity itself. Also, Zehavi discloses that data frame "k" at the first time frame and data frame "k+1" at the second time frame are input into the encoders 22a and 22b at the same time and are transmitted through the same antenna. Rappaport merely mentions certain elements like spread spectrum modulation, PN sequence, direct sequence spread spectrum, which are used in a CDMA system, but fails to disclose features of TSTD of a system using the CDMA scheme which is the subject of the present application.

The Examiner also stated "synchronization could not occur if the code was not an integer multiple of the code length, due to the nature of the PN codes used in such CDMA systems..." on page 5, lines 2 to 5 of the Office Action issued on September 17, 2003. It is respectfully submitted however that 'CODE' as used in the specification is one SEQUENCE, not a chip, and a length of the CODE is equivalent to CODE LENGTH. Applicants respectfully submit that the terms are being incorrectly defined in the Office Action, and therefore are resulting in a misreading and misunderstanding of the claims of the present application.

Additionally, it is respectfully submitted that the Rappaport reference is being misinterpreted. "The transition of the data symbols and chips coincide such that the ratio Ts to Tc is an integer", recited at page 276 of Rappaport, defines Ts as one symbol (data 1 or –1) length and Tc as one chip length to be multiplied by the symbol. Further, the chip length becomes shorter than the symbol length for a bandwidth spreading and the ratio becomes an integer (4, 8, 16, 32, etc.). Although switching operations occur within the symbol period (in the middle of the sequence), because a signal is transmitted through other antennas, it is respectfully submitted that the statement that a problem in synchronization always occurs, is a gross misinterpretation.

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Independent Claims 1, 9, 13, 17, 19 and 23 are believed to be in condition for allowance. Without conceding the patentability per se of dependent Claims 2-4, 20 and 24, these are likewise believed to be allowable by virtue of their dependence on their respective amended independent claims. Accordingly, reconsideration and withdrawal of the rejections of dependent Claims 2-4, 20 and 24 is respectfully requested.

Accordingly, all of the claims pending in the Application, namely, Claims 1-4, 9, 13, 17 and 19-26, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,

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